

# CHAPTER- 3

## RESEARCH

## METHODOLOGY

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### RESEARCH METHODOLOGY

#### **3.1 INTRODUCTION :-**

This chapter deals with experimental design, variables, samplings, tools and their descriptions, pilot testing of tool, administration of tool, data collection, statistical treatment and summary.

#### **3.2 DESIGN OF THE STUDY:-**

A research design is a blue print of the procedure which provide the structure and strategy that controls investigator or experimenter. It enables researcher to test the hypothesis more systematically by reaching valid conclusions about the relationship between dependent and independent variables.

The present study is an experimental research. The study was conducted in one group pre test- post test design. In this design, the investigator measures dependent variable, before the independent variable is applied or withdrawn and then takes its measurement again afterwards. The focus is on variable relationships. In experimental research sources of variations or differences of particular behaviour are studied.

The design of the study is specified in table below

**Table 3.1**

Characteristics of Research Design

Characteristics	Experimental group
Entry status	Pre test
Treatment	Remedial teaching
Terminal status	Post test

### 3.3 VARIABLES :-

The essential feature of experimental research is that the researcher deliberately manipulates, controls, or observes the conditions or characteristics which determine the events in which he is interested. These conditions or characteristics are called "variables".

In educational research generally the variables are categorized in to independent and dependent variables. The independent variables are the conditions or characteristics that the investigator deliberately manipulates or controls to determine the events in which a researcher is interested. The example of independent variables are gender, age, intelligence, teaching methods, a type of teaching material. The dependent variables are the conditions or characteristics that appear, disappear or change as the investigator introduces, removes or changes independent variables. The examples are achievement, the number of errors, learning, test score etc. Besides, these there are some extraneous variables and intervening variables, that can affect the results of the study, example age, gender, interest, motivation etc.

## HERE, THIS STUDY WAS BASED ON FOLLOWING VARIABLES :-

- Independent variable : Remedial teaching
- Dependent variable : Achievement of students.
- Demographic variable : Gender (girls/ boys)

### 3.4 SAMPLING :-:

Sampling is the process of selecting a number of individuals or items for a study in a way that the individuals or items represent the larger group from which they were selected. The individuals or items selected comprise "samples" and the larger group is referred to as "Population". The purpose of sampling is to gain information about a population of interest as subjects.

"Sampling is the selection of certain percentage of a group item according to a predetermined plan". ..... **Bogardus**

A good sample must be as nearly representative of the entire population as possible and ideally it must provide the whole of the information about the population as from which the sample has been drawn.

In the present study, the researcher used purposive sampling (a kind of non probability sampling) The purposive sampling is selected by some arbitrary method because it is known to be representative of the total population or it is known that it will produce well matched groups. The idea is to pick out the sample in

relation to some criterion which are considered important for the particular study.

In the present study, for sampling the students of class VII of Bonnie Foi Sr. Sec. School, Narela Shankari, Bhopal had been selected. The low achievers were taken from the school on the basis of this academic achievement. The details of sample of the study drawn from the school is given in the following table.

**Table. 3.2**  
**Sample of the study**

<b>S. No.</b>	<b>School</b>	<b>Pre Test</b>	<b>Low Achievers</b>	<b>Post test</b>
1.	Bonnie Foi Sr. Sec. School, Narela Shankari, Bhopal	37	30	30

Demographically, the sample elements were from families of class III and IV employees, small shopkeepers, watchman and workers.

### **3.5 TOOLS :-**

A researcher requires many data- gathering tools or techniques. Each tool is suitable for the collection of certain type of information. One has to select from the available tools those which will provide data he seeks for testing hypothesis.

For the study of the effect of remediation on students (low achievers) a diagnostic test/ achievement test was prepared by researcher herself and administered on students of class VII of the selected school.

### 3.5.1 DIAGNOSTIC TEST :-

In education, the term "diagnosis" has been borrowed from medicine, where it is used to find out the root cause of a symptom such as fever, pain, etc. The diagnosis is followed by the appropriate treatment. The evaluation in the form of diagnostic testing could be both formative or summative evaluation. Diagnostic test and achievement test developed can be used for different purposes. Achievement test is used to measure the achievement of the learners after a duration of the teaching learning process. The purpose of diagnostic test is to evaluate and accumulate data regarding the finding of the root cause. In education, diagnostic testing is a multi dimensional process that requires wellplanned efforts on the part of the teacher. When conducted in a systematic manner, it could help to identify the root cause of the problem and subsequently remove learning impediments. As a result the learning could turn out to be more meaningful to the learners and satisfying to the teacher. A variety of strategies could be used to diagnose the learning impediments.

In this study, the researcher prepared a diagnostic test/ achievement test for identifying errors. For constructing it, the items were framed on the basis of selected content of unit, "sustenance of the individual" of general science of class VII.

Before constructing the test, the teachers of general science were consulted regarding the type of errors that student make under this topic

The sub topics included in the test are given below :-

1. Digestive system
2. Respiratory system
3. Circulatory system
4. Excretory system

The test consisted of various form of questions such as multiple choice questions, fill in the blanks, true/ false, match the column and short answer questions. These test items covered the above contents of the unit. The number, type and marks of the test items are shown in the table below:-

**Table 3.3**

**Types, number and marks of questions given in the test.**

S. No.	Type of Questions	No. of questions	Total Marks
1.	Multiple choice	10	10
2.	Fill in the blanks	8	8
3.	True/ False	6	6
4.	Match the column	6	6
5.	Short answer questions	5	10
	<b>Total</b>	<b>35</b>	<b>40</b>

### **3.5.2 PILOT TESTING OF THE TOOL :-**

To analyze the items in terms of their clarity, time, duration and appropriateness, to find out the discriminating power of the items and difficulty index, the pilot study was undertaken. Pilot study was conducted in order to establish the reliability, validity,

and usability of the test items. The diagnostic test consisting 35 items was administered to 10 students of class VII of one school ( i.e. Red Rose School). This school was different from school selected for the main study. The test scores were analysed to find out questions which could not be adopted by the students. The students took 45 minutes to complete the test. The test was modified as per the analyses with respect to the language. There was no limit of the time in the administration of test.

The test paper was also discussed with the teachers teaching the student of class VII and the subject experts of the college and according to their suggestions, the necessary changes were made in the questions.

### **3.5.3 ADMINISTRATION OF THE TOOL :-**

The researcher personally met the principal of the school and get acquainted with the teachers concerned and established rapport with the students. Prior to administration, the students were explained about the pretest that they were supposed to attempt.

The significance of the test and necessary instructions were given to them. The students were made clear that this test is designed to help them and is not for grade. and the whole process had nothing to with their school achievement. After this, researcher administered the test on the students. The study was conducted on both make and female students. They were given question paper and asked to answer the questions which they thought correct. Adequate time was given to the students to complete the test. The students were observed during the test.



The atmosphere created at the beginning and during the test situation and the rapport achieved between tester and testee throughout the examination are of importance in respect to both the quantitative and qualitative results obtained. The investigator had friendly contact with the testees and was strict to the instructions given below.

1. Read these questions carefully as quickly as possible.
2. This test will not attend your final result in any manner.
3. There is no time limit, but try to finish the test in 2 hrs.
4. You may find some of the questions difficult. In such a case do not waste time, go on to the next questions.
5. Don't talk while answering the question paper.
6. All the working may be shown as the marks are immaterial in the test. After completion of the test, the test papers were collected.

Now the experimental group was given treatment of remedial materials. After treatment, the experimental group was given post test (the same test administered as pre test) The same test was used as pre test as well as post test.

### **3.6 TREATMENT :-**

After identification of the low achievers and their weak spots in the given topic, the proper teaching learning material like charts , models and CD's of different organ systems in human being were arranged. Various activities to be performed were planned and arranged.

This remediation was given to students (low achievers ) of class VII by the investigator herself. In this programme, proper

teaching learning material is used and various activities were performed. The researcher herself taught them through these remedial materials for a short duration of time that is for seven days.

### 3.7 DATA COLLECTION :-

After treating with remedial material, again the diagnostic test was administered on sample for finding the effect of remedial teaching on achievement level of students. The same diagnostic test was administered as given in pre test and same instructions were given. The details of the both the tests are given in the table given below.

**Table 3.4**

**Showing the details of pre test and post-test treatment**

S. No.	School	Pre test	Treatment	Post test
1.	Bonnie Foi Sr. Sec. School. Narela Shankari Bhopal	4 Feb. 2006	11 Feb to 18 Feb. 2006	20 Feb. 2006

At the end of the test, an introspection report of few students was taken. The researcher expressed gratitude to the teachers and students for their cooperation.

### 3.8 STATISTICS USED :-

The data so collected was subjected to analysis by using 't-test'. The analysis was done with a view to find out effect of remedial teaching on students achievement. For the analysis and

interpretation of the data raw scores were classified and tabulated into different categories. In this study, the researcher tried to find out the difference in achievement in general science of the students by using remedial materials so descriptive statistics like mean, standard deviation and some quantitative analysis like coefficient of correlation and 't' test were used. The significance of difference among the categories were determined by calculating 't' value.

### **3.9 SUMMARY :-**

This chapter has been devoted to description of experimental design, variables, sampling. tools, data collection, and statistical treatment.